



United States Department of the Interior Bureau of Land Management



Battle Mountain Field Office

August 2005

Battle Mountain Field Office
Bureau of Land Management
50 Bastian Road
Battle Mountain, Nevada 89820

Environmental Assessment NV063-EA05-57



Klondex Mines, Ltd
Fire Creek Exploration Project
Lander County, Nevada

**KLONDEX MINES LTD.
FIRE CREEK EXPLORATION PROJECT
LANDER COUNTY, NEVADA**

**Environmental Assessment
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ENVIRONMENTAL ASSESSMENT**

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**KLONDEX MINES LTD.
FIRE CREEK EXPLORATION PROJECT
ENVIRONMENTAL ASSESSMENT**

1 INTRODUCTION / PURPOSE OF AND NEED FOR ACTION

1.1 Introduction

Klondex Mines, LTD (KML) submitted a Plan of Operations (Plan) in March 2005 to the Bureau of Land Management, Battle Mountain Field Office (BLM) for expanded mineral exploration at its Fire Creek Exploration Project (Project), which has approximately 4.62 acres of existing surface disturbance. The Project is located within the local drainage basin of Fire Creek, approximately six miles northwest of the town of Crescent Valley in Lander County, Nevada (Figure 1) specifically located in portions of Sections 14, 15, 22, and 23, Township 30 North, Range 47 East (T30N, R47E) Mount Diablo Base and Meridian (MDB&M) (Project Area) (Figure 2). The Project Area includes portions of two sections of public land administered by the BLM and approximately one section of adjacent split estate land with private surface ownership and federal subsurface mineral ownership (Figure 3).

KML has conducted Notice-level drill exploration in the Project Area and has disturbed approximately 4.62 acres. The Proposed Action consists of additional exploration activities that include the following: a) construction of drill sites; b) construction of exploration roads; c) overland travel; d) bulk sampling in trenches; and e) exploration drilling. KML has proposed 45.38 acres of new exploration related disturbance for a total of 50 acres of surface disturbance. The disturbance planned for Phase I exploration is illustrated on Figure 4. The Proposed Action would be implemented in a phased manner based on geologic mapping and drill results.

1.2 Existing Activities

The Fire Creek site has been the focus of precious metals exploration and development activities for much of the past century. In 1981 KML constructed and operated a small scale (2000 ton) heap leach operation, which was later expanded. In 1982 KML leased the Fire Creek Claims to Minex Inc. who drilled 60 exploration holes, constructed an open pit mine, and upgraded the existing leach facility disturbing approximately six acres. Minex recontoured and seeded the waste rock dumps and neutralized the cyanide in the process ponds. The leach pad and process ponds were left intact, under the assumption that the leaching operation would be restarted by Alma American Mining (AAM); however, the leaching operation was not resumed by AAM or any other company. During 1986 AAM constructed roads and drilled 30 to 40 exploration holes. In 1987, KML submitted a Plan of Operations for expansion of the existing open pit mine, which was never approved. During 1988, Black Beauty Gold leased claims and fee land on the Fire Creek site from KML to conduct exploration drilling. Black Beauty Gold submitted a plan of operations and an environmental assessment (EA) in 1989 and 1990, respectively. North Mining Company conducted operations in the Project Area from 1993 through 1996. In 2004, KML conducted Notice-level work that disturbed a total of 4.62 acres on both private and public land. This surface disturbance includes cross country travel by vehicles, exploration drill pads and sumps, and minor road construction.

1.3 Purpose of and Need for Action

The purpose of the Proposed Action is to locate and delineate precious metal deposits within the Project Area. The proposed activities are needed to evaluate the mineral potential of the Project Area for potential future mine development. In order to conduct the proposed exploration activities, KML submitted the Plan to the BLM and the Nevada Division of Environmental Protection, Bureau of Mining Regulation and Reclamation (NDEP/BMRR) in March 2005, in accordance with BLM Surface Management Regulations at Code of Federal Regulations Title 43, Part 3809 (43 CFR 3809) (as amended) and Nevada reclamation regulations at Nevada Administrative Code (NAC) 519A. The BLM is required to prepare an EA, which documents the impacts that the Proposed Action would have on the environment (43 CFR 3809.411). This EA fulfills the BLM's responsibility under the National Environmental Policy Act (NEPA) and is prepared in general conformance with NEPA, the Council of Environmental Quality (CEQ) regulations implementing NEPA (40 CFR 1500-1508), and the BLM guidelines for implementing NEPA (BLM 1988).

1.4 BLM Responsibilities and Relationship to Planning

The EA was prepared in conformance with the policy guidance provided in BLM's NEPA Handbook (BLM Handbook H-1790-1). The BLM Handbook provides instructions for compliance with the Council on Environmental Quality (CEQ) regulations for implementing the procedural provisions of NEPA and the Department of the Interior's (DOI's) manual on NEPA (516 DM 1-7).

1.4.1 Resource Management Plan

The Proposed Action conforms with the BLM's Shoshone-Eureka Resource Management Plan (RMP) dated March 1986 (BLM 1986a). Specifically, on page 29 in the RMP Record of Decision (ROD), under the heading "Minerals" subtitled "Objectives" number 1:

"Make available and encourage development of mineral resources to meet national, regional, and local needs consistent with national objectives for an adequate supply of minerals."

Under "Management Decisions," "Locatable Materials," page 29, number 1:

"All public lands in the planning areas will be open for mining and prospecting unless withdrawn or restricted from mineral entry."

Under "Management Decisions," number 5, Current Mineral Production Areas:

"Recognize these areas as having a highest and best use for mineral production and encourage mining with minimum environmental disturbance..."

1.4.2 Local Land Use Planning and Policy

The Proposed Action is consistent with Section XI of the Lander County Revised Policy Plan for Federally Administered Lands - November 1999 (Lander County 1999), which sets forth the policy to "promote the expansion of mining operations and areas." This policy also states that mine site

reclamation standards should be consistent with the best possible post-mine use for each specific area and that specific standards should be developed for each property.

1.5 Issues

The following issues and concerns regarding the Proposed Action were identified by BLM personnel to be addressed in this EA:

- Introduction of noxious weeds by the incidental transport of equipment to and from the Project Area
- Vegetation Resources
- Special Status Species
- Water Resources
- Cultural Resources (archaeology)
- Native American Concerns

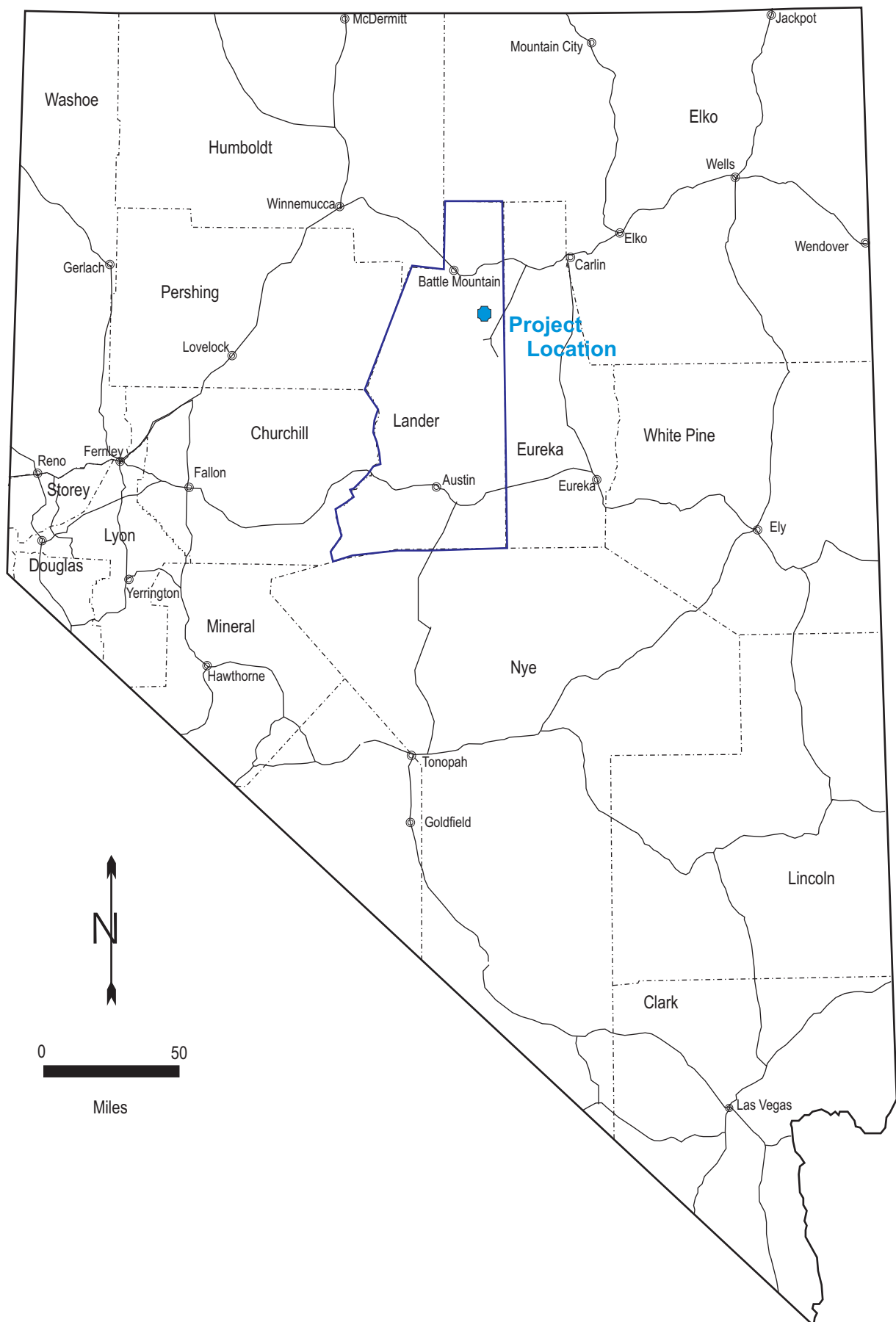
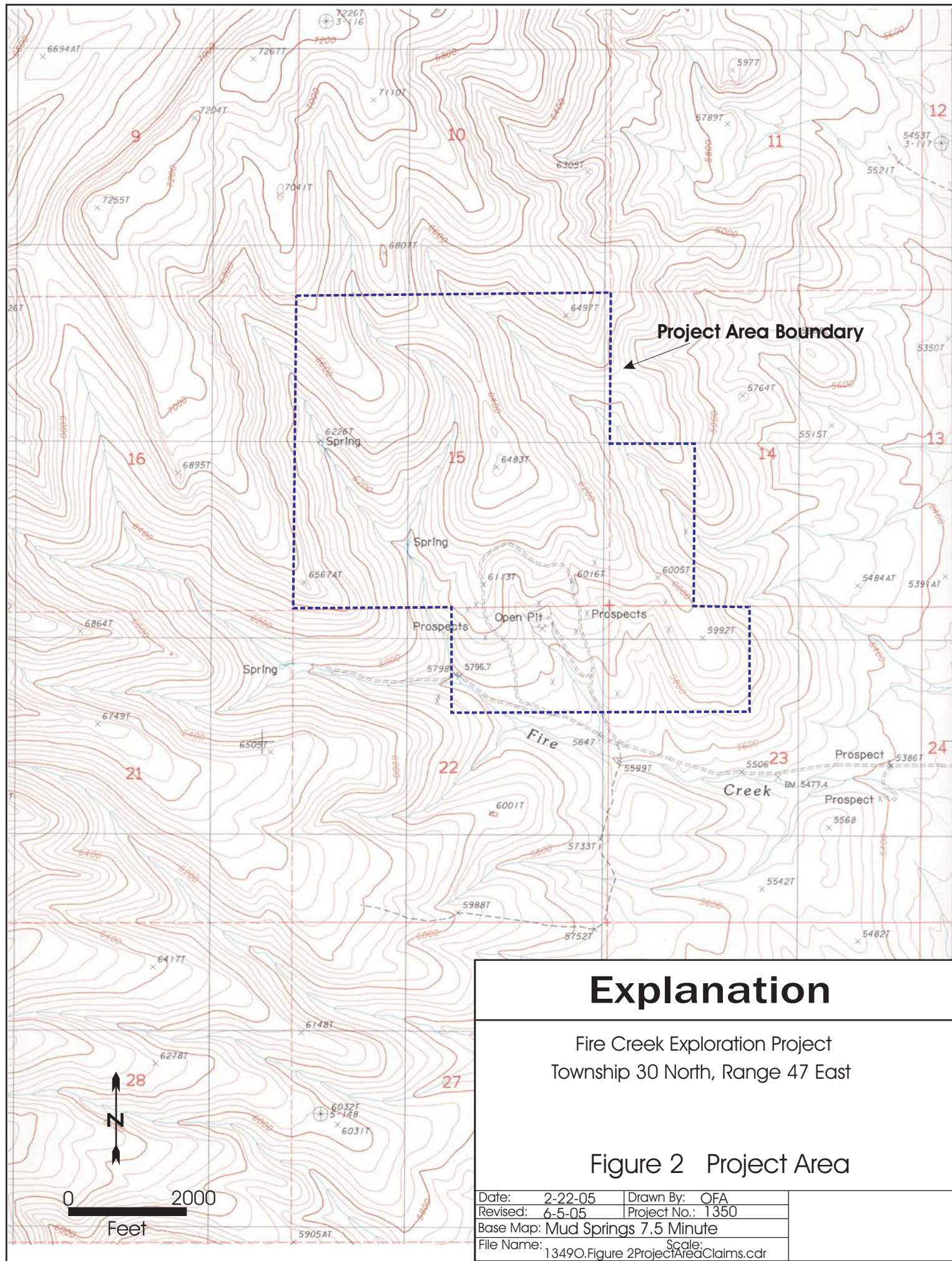
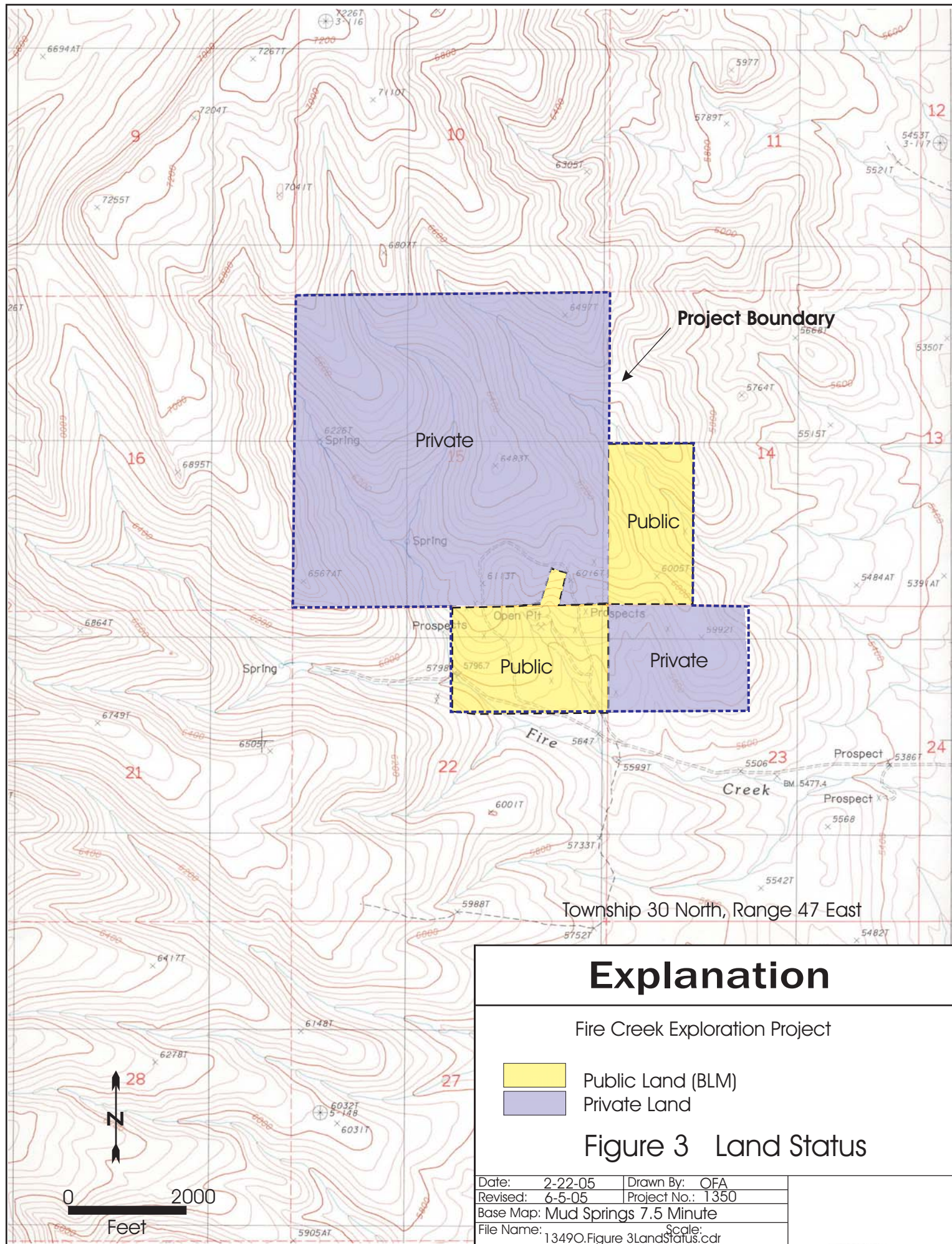
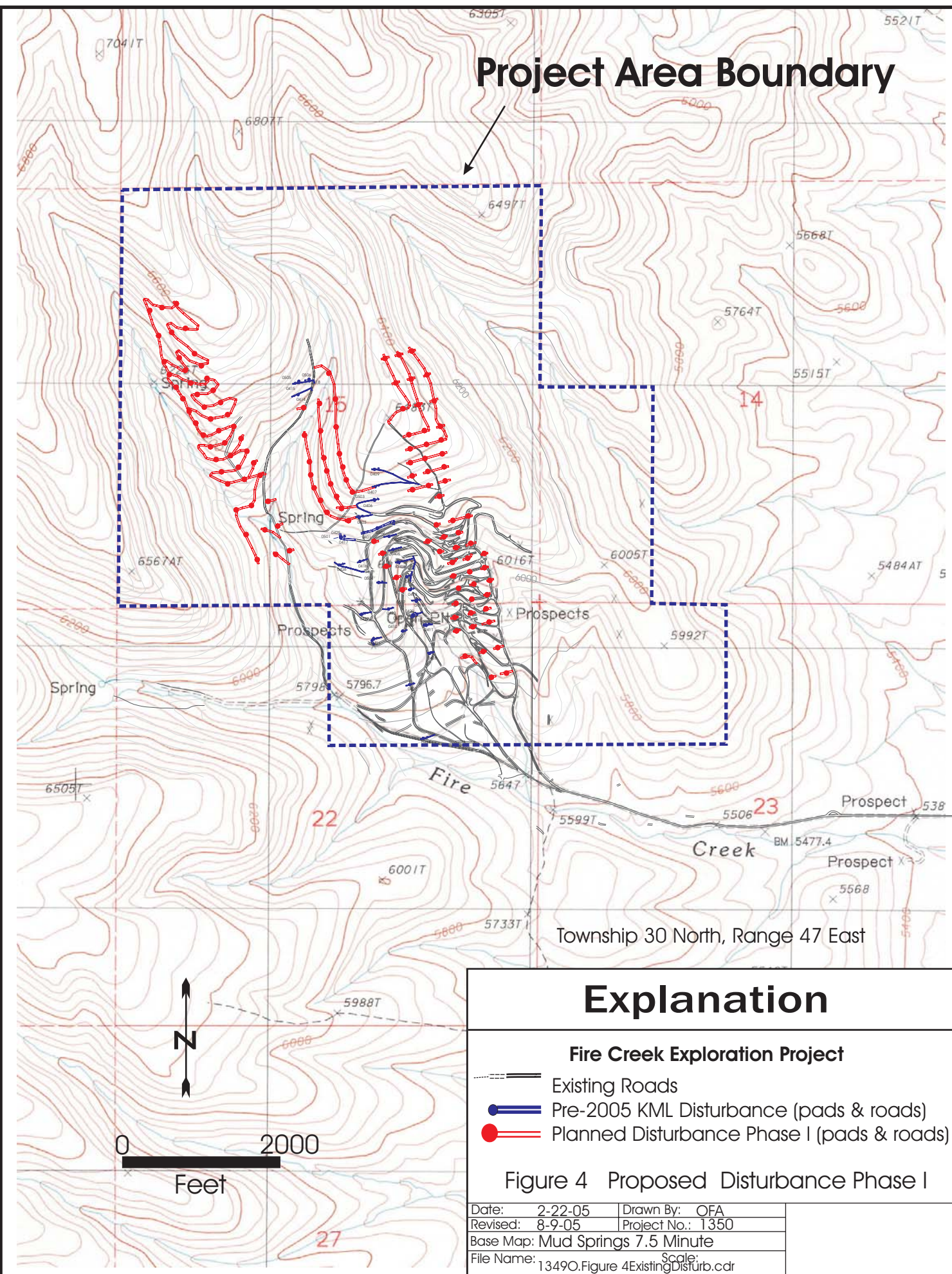


Figure 1: General Location Map





Project Area Boundary



Explanation

Fire Creek Exploration Project

Existing Roads

Pre-2005 KML Disturbance (pads & roads)

Planned Disturbance Phase I (pads & roads)

Figure 4 Proposed Disturbance Phase I

Date: 2-22-05	Drawn By: OFA
Revised: 8-9-05	Project No.: 1350
Base Map: Mud Springs 7.5 Minute	
File Name: 13490.Figure 4ExistingDisturb.cdr	Scale:

2 PROPOSED ACTION AND ALTERNATIVES

2.1 Proposed Action

Under the Proposed Action, KML proposes to expand exploration activities, which would include the following: a) construction of drill sites; b) construction of exploration roads; c) overland travel; d) bulk sampling in trenches; and e) exploration drilling.

Table 1 outlines the total acreage of existing and proposed surface disturbance, by type of disturbance, for the Project. The 4.62 acres of existing Notice-level disturbance includes 2.97 acres of disturbance on private land and 1.65 acres on land administered by the BLM. This 4.62 acres is included in the proposed phased disturbance of 50 acres. Phase I under the Plan is 12.22 acres of surface disturbance. The remaining 33.16 acres would be implemented in a phased manner over the next several exploration seasons. The proposed surface disturbance following Phase I could occur on either public or private lands and can not be specified at this time because the specific locations for the proposed activity would be based on the results of the previous phase(s) of exploration.

Table 1: Acreage of Existing and Proposed Project Disturbance

Exploration Activity / Land Status		Surface Disturbance (acres)			
		Existing Disturbance	Proposed Phase I	Proposed Subsequent Phases	Total Disturbance (acres)
Exploration Roads	Private	1.22	3.17	11.14	15.53
	Public	1.00	0.65	6.62	8.27
Roads Total					23.80
Drill Pads (includes sumps)	Private	1.75	7.40	12.40	21.55
	Public	0.65	1.00	3.00	4.65
Drill Pads & Sumps Total					26.20
Total		4.62	12.22	33.16	50.00

KML has projected that the total existing and proposed surface disturbance under this Plan would equal 50 acres. KML would conduct this exploration using a phased approach, similar to other exploration plans of operations approved by the BLM in Nevada. Prior to conducting each phase subsequent to Phase I, KML would submit to the BLM, for review, a map outlining the location of the planned activities under that phase. This would ensure that KML avoids all identified sensitive resources during each phase under the Plan. The Proposed Phase I disturbance is listed in Table 1 and depicted on Figure 4. Cultural resource surveys cover the current existing disturbance, and all disturbance planned under Phase I, were completed under previous operators. By using a phased approach to drilling, KML would be able to assess the expansion needs of the Project based on the most current drill results. In order to provide the BLM and BMRR relevant data concerning surface disturbance, KML would provide annual documentation of surface disturbance locations, types of surface disturbance, and any completed concurrent reclamation. In the event KML determines that exploration activities have varied in such a way that would affect the reclamation bond calculation, an updated Reclamation Cost Estimate would be supplied with the annual report.

2.1.1 Location and Access

The Project is located approximately 20 miles southeast of Battle Mountain on the east side of the Shoshone Range in Lander County, Nevada. Access to the property from Battle Mountain is via 25 miles on I-80 east, 15 miles south on State Route (SR) 306, then west for five miles on a gravel road. The Project is located within the local drainage basin of Fire Creek, approximately six miles northwest of Crescent Valley. The Project can be accessed using the existing Fire Creek Road or a network of existing exploration and mine access roads. The Project Area is located on both private lands and lands administered by the BLM, Battle Mountain Field Office. The private land is located in Sections 15 and 23 of T30N, R47E MDB&M (Figure 3).

2.1.2 Road Construction

KML would construct new exploration roads resulting in approximately 21.58 acres of additional surface disturbance. Approximately 7.27 acres of surface disturbance would occur on public land and 14.31 acres on private land (Table 1). This acreage combined with existing surface disturbance would total approximately 23.80 acres.

Exploration roads and drill pads, which require earth moving, would be located and constructed using standard construction practices for temporary mineral exploration roads to minimize surface disturbance, erosion and visual contrast, as well as to facilitate reclamation. Road construction would be implemented using a Cat D8L or equivalent. The proposed exploration roads and spurs would be bladed to an average width of 20 feet including side cast material, with waterbars installed as needed. Every effort would be made to keep road grades at ten percent or less unless steeper grades are necessary for short pitches.

Balanced cut and fill construction would be used to the extent possible, to minimize the exposed cut slopes and the volume of fill material. Since the depth of the cut would be kept to a minimum, growth media removed during construction would be stockpiled as the fill slope to be used during reclamation. Road construction within drainages would be avoided where possible. Drill site construction within drainages would be avoided. When drainages must be crossed by a road, Best Management Practices (BMPs) established by NDEP and the Nevada Division of Conservation Districts through the State Environmental Commission (1994) would be followed to minimize surface disturbance and erosion potential. No culverts would be installed. It is not anticipated that blasting would be necessary to construct roadbeds. Rock outcrops and areas of shallow soils on bedrock, where present, would be avoided whenever possible. Routine road maintenance may be required and would consist of smoothing ruts, filling holes with fill material, grading, and reestablishing waterbars when necessary.

2.1.3 Exploration Drill Pads

Drill pads would be constructed, each measuring approximately 40 feet by 60 feet. Sumps, measuring ten feet by 15 feet by six feet deep, would be constructed to contain drill cuttings. A sump may be used by more than one drill hole. During excavation activities, spoil piles approximately ten feet by 20 feet would be constructed adjacent to the pads and sumps. The total proposed disturbance associated with drill pad, sump, and spoil pile construction is expected to be 23.8 acres. Approximately 4.0 acres of surface disturbance would occur on public land and 19.8 acres on private

land (Table 1). This proposed disturbance combined with existing drill pad and sump disturbance totals approximately 26.20 acres (Table 1).

KML would conduct exploration drilling with two drill rigs. Drill holes would be vertical or angled, and drilled with reverse circulation and/or core drill rigs. Drill holes would average approximately 1,200 feet in depth. All drill holes would be surveyed and plugged as an operational procedure immediately after completion of drilling in accordance with NAC Chapter 534.421 and 534.425. At no time during the life of the project would any drill hole be left open. Drill holes would be plugged by placing drill cuttings or inorganic fill material into the total depth of the hole, or if ground water is encountered, plugged as a well pursuant to NAC 534.420.

2.1.4 Trenches

Up to two trenches may be constructed to conduct near surface mapping and sampling. Trenches would be 30 feet wide and 15 feet deep and approximately 100 feet long, including the spoil piles. This amounts to approximately 0.14 acre of surface disturbance. No trenches are planned under Phase I.

KML will conduct bulk sampling activities in conjunction with road and drill pad construction. The excavated material will be placed in 55 gallon drums for transport offsite. The bulk sample would be collected by a backhoe from a road cut or trench and no additional disturbance beyond the road cut or trench will occur.

2.1.5 Equipment

Exploration drilling equipment could include the following:

- 1) Two drill rigs including the following support vehicles:
 - Two crew vehicles (4x4 pickups);
 - Two 2,000-3,500 gallon water trucks or all-terrain vehicles;
 - Two pipe trucks;Two booster trucks;
One or two auxiliary air compressors;
One or two portable light plants/generators.
- 2) One or two 4x4 pickups with winch for down-hole surveys; and
- 3) Two 4x4 pickups for KML geological personnel.

KML would take steps to prevent fires by ensuring that each field vehicle carries hand tools and a fire extinguisher. Water trucks at the Project Area would be used in the event of a fire. All portable equipment, including drill rigs, support vehicles and drilling supplies, would be removed from the Project Area during extended periods of non-operation.

2.1.6 Water Use

KML would continue using water from the Town of Crescent Valley via a metered fire hydrant.

2.1.7 Work Force

Two drill rigs and associated drill shift crews would be operating in the Project Area at any time. Each drill shift crew would include approximately three contract personnel, and a geologist. Up to a total of 12 individuals would be working in the Project Area at one time. Standard drilling procedures would usually require a geologist present at each drill rig to log the hole and advise the drill operator as needed. The geologist would generally travel to and from the drill site in a separate 4-wheel drive pickup truck. The employees would commute from the nearby communities of Crescent Valley, Elko, or Battle Mountain to the Project Area during the period of operation. Drilling activities would generally be limited to daylight hours but may be 24 hours per day. The drill schedule would generally include one shift lasting up to 12 hours.

2.1.8 Surface Water Control

BMPs for sediment control would be employed during construction, operation, and reclamation to minimize sedimentation from disturbed areas. Proposed construction and drilling activities would avoid springs and seeps. In order to facilitate drainage and prevent erosion, all bladed roads would have waterbars constructed, as needed, at BLM recommended spacings.

Sediment control structures may include, but not be limited to, fabric and/or hay bale filter fences, siltation or filter berms, mud pits, and downgradient drainage channels in order to prevent unnecessary or undue degradation to the environment. Sediment traps, constructed as necessary on drill pads, would be used to settle drill cuttings and prevent their release.

2.1.9 Solid and Hazardous Materials

All refuse generated by the Project would be disposed of at an authorized landfill facility offsite, consistent with applicable regulations. No refuse would be disposed of onsite. Water and/or nontoxic drilling fluids would be utilized as necessary during drilling and would be stored at the Project Area.

Hazardous materials employed at the Project Area would include diesel fuel, gasoline, and lubricating grease. Approximately 500 gallons of diesel fuel would be stored in fuel delivery systems on vehicles and drill rigs. Approximately 100 gallons of gasoline would be stored in fuel delivery systems for light vehicles. Approximately 100 pounds of lubricating grease would be stored on the drill rigs or transported by drill trucks. In the event hazardous or regulated materials, such as diesel fuel, were spilled, measures would be taken to control the spill and the BLM, NDEP, and/or the Emergency Response Hotline would be notified, as required.

2.1.10 Reclamation

Reclamation would be completed to the standards described in 43 CFR 3809.420. Overland travel and existing roads would be utilized as much as possible, minimizing the need for road construction. All KML drill sites, sumps, trenches, and road construction would be reclaimed. The area would then be seeded with a BLM approved seed mix (Table 2) at the appropriate time of year for optimum seed sprouting and plant growth. The seeding would be completed using a broadcast method and then raked. The reclaimed surfaces would be left in a textured or rough condition (small humps, pits, etc.). Broadcast seed application would be at the rate of approximately 12 pounds of pure live seed per

acre, and native seed would be used, when available. Only certified weed free seed would be used for reclamation seeding. Post-reclamation maintenance would consist of remedial dirt work and reseeding if required. Site monitoring for stability and revegetation success would be conducted once a year, during the spring or fall, for a minimum of three years until attainment of the revegetation standards established in the *Nevada Guidelines for Successful Revegetation for the Nevada Division of Environmental Protection, the Bureau of Land Management, and the USDA Forest Service* (Instruction Memorandum #NV 99-013).

Table 2: Proposed Seed List

Wyoming Sagebrush Community					
Shrubs (Select four at the listed application rates)					
Common Name	Scientific Named	Lbs./Acre (PLS)	Selection	Cost/Lb.	Cost/Acre
Wyoming big sagebrush	<i>Artemisia tridentata wyomingensis</i>	0.10		\$34.00	\$3.40
Fourwing saltbush	<i>Atriplex canescens</i>	2.00		\$8.50	\$17.00
Spiny hopsage	<i>Grayia spinosa</i>	1.00		\$160.00	\$160.00
Forage kochia	<i>Kochia prostrata</i>	0.25		\$6.00	\$1.50
Nevada Mormon tea	<i>Ephedra nevadensis</i>	4.00		\$65.00	\$260.00
Forbs (Select three at the listed application rates)					
Common Name	Scientific Named	Lbs./Acre (PLS)	Selection	Cost/Lb.	Cost/Acre
Scarlet Globemallow	<i>Sphaeralcea coccinea</i>	0.50		\$75.00	\$37.50
Royal penstemon	<i>Penstemon speciosus</i>	0.50		\$40.00	\$20.00
Lewis flax	<i>Linum lewisii</i>	1.00		\$5.00	\$5.00
Sweetvetch	<i>Hedysarum boreale</i>	2.00		\$75.00	\$150.00
Grasses (Select three at the listed application rates)					
Common Name	Scientific Named	Lbs./Acre (PLS)	Selection	Cost/Lb.	Cost/Acre
Crested wheatgrass	<i>Agropyron cristatum</i>	2.00		\$1.50	\$3.00
Indian ricegrass	<i>Oryzopsis hymenoides</i>	2.00		\$3.75	\$7.50
Great Basin wildrye	<i>Elymus cinereus</i>	2.00		\$3.50	\$7.00
Bottlebrush squirreltail	<i>Sitanion hystrix</i>	2.00		\$12.00	\$24.00

The Plan outlines reclamation that has been developed for site-specific conditions found at the Project Area and addresses exploration related disturbance. The intent of the reclamation is to restore the Project Area to a beneficial land use, prevent unnecessary degradation of the environment, and reclaim disturbed areas to ensure visual and functional compatibility with surrounding areas.

During the exploration program, reclamation activities would involve management of drilling to contain cuttings and drilling fluids, monitoring road conditions during periods of inclement weather, and keeping sites clean and safe.

During seasonal closure of the program and periods of inactivity between drilling phases, reclamation activities would involve the filling of hazardous sumps, clean up of sites, and maintaining the overall safety of the Project Area.

The post-exploration and post-reclamation topography would be essentially the same as the pre-exploration topography, because only limited amounts of linear surface disturbance are planned. The topography shown on Figure 2 can be used as depiction of the post-exploration and post-reclamation topography.

Exploration activities would commence as soon as the EA and Plan are approved. Exploration activities would occur over a two to three year period, however the actual length of exploration activities would depend on the results of the exploration work. All reclamation work, with the exception of revegetation monitoring, would be completed no later than two years after the completion of activities under the Proposed Action. KML would conduct concurrent reclamation of disturbed areas once it is determined that the disturbance is no longer necessary for subsequent activities. Table 3 outlines the anticipated reclamation schedule on a quarterly basis, which would be followed to achieve the reclamation goals set forth above. Revegetation activities are limited by the time of year during which they can be effectively implemented. Site conditions and/or yearly climatic variations may require that this schedule be modified to achieve revegetation success.

Table 3: Anticipated Exploration Reclamation Schedule

TECHNIQUES	Quarter				Year(s)
	1 st Jan-Mar	2 nd April-June	3 rd Jul-Sept	4 th Oct-Dec	
Regrading					Within 2 years of Project completion
Seeding					Within 2 years of Project completion
Monitoring					3 years beyond regrading and reseeding

2.1.11 Environmental Protection Measures

KML shall commit to the following environmental protection measures to prevent unnecessary or undue degradation during construction, operation, and reclamation of the Project. The measures are derived from the general requirements established in the BLM's Surface Management Regulations at 43 CFR 3809 and BMRR mining reclamation regulations, as well as other water and air quality regulations.

- Mineral exploration and development drill holes and monitoring wells shall be properly abandoned in accordance with NAC 534.4369 and 534.4373. If ground water is encountered, the drill holes shall be plugged pursuant to NAC 534.420. In addition, drill holes shall be plugged prior to the drill rig moving from the drill site as an operational procedure.

- Pursuant to 43 CFR 10.4(g), KML shall notify the BLM authorized officer, by telephone, and with written confirmation, immediately upon the discovery of human remains, funerary objects, sacred objects, or objects of cultural patrimony (as defined in 43 CFR 10.2). Further pursuant to 43 CFR 10.4 (c) and (d), the operator shall immediately stop all activities in the vicinity of the discovery and not commence again for 30 days or when notified to proceed by the BLM authorized officer.
- Only nontoxic fluids shall be used in the drilling process.
- Drill cuttings and fluids shall be contained onsite utilizing appropriate control measures. Sediment traps shall be used as necessary, and filled at the end of the drill program.
- Regulated wastes shall be removed from the Project Area and disposed of in a state, federally, or locally designated area.
- Emissions of fugitive dust from disturbed surfaces shall be minimized by utilizing appropriate control measures. Surface application of water from a water truck is the current method of dust control during high wind conditions.
- To prevent violation of the Migratory Bird Treaty Act, KML shall either conduct surface disturbing activities outside the migratory bird nesting season (roughly March through June) or employ a qualified biologist to survey prospective work areas prior to surface disturbance during the nesting season. If nests were found, a 250-foot buffer area around the nest shall be avoided.
- From March 1 to July 1 of each year, KML shall not conduct drilling or surface disturbing activities within 0.5 mile radius of any active raptor nests. Upon identifying an active raptor nest, KML shall immediately notify the BLM.
- From March 1 through May 15 of each year KML shall not conduct any surface disturbing activities within a 0.5 mile radius of any known sage grouse lek/strutting ground.
- From April 1 to August 15 of each year, KML shall not conduct surface disturbing activities within a 0.5 mile radius of any known nesting and brood rearing areas. Upon identifying any previously unknown sage grouse lek/strutting ground or nesting or brood rearing area, KML shall immediately notify the BLM.
- Noxious weeds shall be controlled through implementation of preventive BMPs and eradication measures shall be implemented if noxious weeds are found.
- The riparian area along Fire Creek shall be avoided.
- All eligible or unevaluated cultural resources shall be avoided.

- KML shall not conduct new surface disturbing activities within 100 feet of any drainage, seep, or spring that is actively flowing.
- From June 1 through August 15, KML shall not conduct new surface disturbing activities within 0.5 mile of any drainage, seep, or spring that is actively flowing to minimize impact to wildlife.
- All exploration activities shall be conducted using BMPs such that sediments, cuttings, drilling fluids, or any other material or substance shall not enter flowing drainages.
- If KML determines that its operations require conducting new surface disturbing activities within water and riparian exclusion zones, KML shall submit to the BLM a 1:24,000 scale map showing the locations of the proposed drill pads and access roads. KML shall not conduct the proposed operations unless authorized by the BLM, which may require further environmental analysis.
- Drill pads, sumps, and trenches shall be reclaimed as soon as practicable after completion of logging and sampling.

2.2 No Action Alternative

The NEPA requires that an alternative of No Action be analyzed. In this instance, the No Action Alternative would mean that the proposed exploration plan would not be approved. KML could continue exploration drilling under their Notice but would be limited to a maximum of five acres of surface disturbance on public and private lands in the Fire Creek area. Five acres of surface disturbance is the regulatory limit for exploration related actions conducted under a Notice. KML has currently disturbed 4.62 acres.

3 AFFECTED ENVIRONMENT

The purpose of this section is to describe the existing environment of the Project Area to be affected by the alternatives under consideration. There are 15 critical elements of the human environment that are specifically required by statute, regulation, executive order, or state guidelines that must be considered in the Proposed Action and alternatives of all EAs. These are as follows:

- Air Quality
- Areas of Critical Environmental Concern
- Cultural Resources
- Migratory Birds
- Farm Lands (prime or unique)
- Floodplains
- Native American Traditional Concerns
- Threatened, Endangered, Candidate, and Special Status Species
- Wastes (hazardous or solid)
- Water Quality (drinking/ground)
- Wetlands/Riparian Zones
- Wild and Scenic Rivers
- Wilderness
- Environmental Justice
- Invasive, Nonnative Species

The following critical elements of the human environment are not present or are not affected by the Proposed Action or Alternative in this EA, and therefore are not addressed:

- Areas of Critical Environmental Concern
- Farm Lands (prime or unique)
- Floodplains
- Environmental Justice
- Wetlands/Riparian Zones
- Wild and Scenic Rivers
- Wilderness

Other resources not affected by the Proposed Action or the Alternative in this EA are energy, paleontology, forestry, and auditory resources. The remainder of this chapter addresses the resources that are present within the Project Area or that would be affected by the Proposed Action. The affected environment is the same for the Proposed Action and the No Action Alternative.

The Project lies within the Bullion Mining district and has been the focus of precious metals exploration and development for much of this and the past century. Gold was first discovered in 1905 near the old town of Tenabo, about 15 miles south of the Fire Creek site. The Project is located on the eastern flank of the Shoshone Range at elevations ranging from approximately 5,000 feet above mean sea level (amsl) along Fire Creek to about 7,300 amsl feet near the top of the Project boundary (Figure 3).

3.1 Geology and Minerals

The geology of the northern Shoshone Range in the vicinity of the Project Area is described in detail in Gilluly and Gates (1965) and consists of siliceous and volcanic assemblage rocks of Ordovician, Silurian, and Devonian age in a complex array of thrust slices within the upper plate of the Roberts Mountains thrust. The Paleozoic rocks are intruded locally by Tertiary granitic rocks and, in the vicinity of the Project Area, are overlain by a thick sequence of late Miocene basaltic andesite. Bedrock at the project site consists of basaltic andesite overlying sedimentary rocks of Silurian and Devonian age.

Mineralization at Fire Creek is hosted by a series of basalt and dacite flows, tuffs, and pyroclastic rocks deposited concurrently with the formation of a graben structure known as the Northern Nevada Rift. Strong north-northwest-trending high angle normal faults offset the volcanic units, forming a series of horst and graben structures adjacent to the main Northern Nevada Rift graben. Subsequent east-northeast-trending faults further offset volcanic stratigraphy and alteration/mineralization. Clay mineralogy studies and mapping in the BLM resource area are consistent with a zoned hot spring type hydrothermal system, much of which is preserved at the north end of the Project Area.

3.2 Soils

Soils in the Project Area were mapped by the Soil Conservation Service (1985) and are composed of two major soil associations: 1) Bucan-Bucan, steep; and 2) Walti-Cleavage-Softscrabble. These two associations occur on the upper slopes and ridges. The Bucan-Bucan parent material is residuum and colluvium capped with loess high in volcanic ash from a volcanic source rock. Depth to bedrock is 40 to 60 inches, permeability is slow, runoff is rapid, hazard of erosion by water is severe; by wind is slight, and the shrink-swell potential is high. Bucan-Bucan steep soil is rated poor for range seeding because of large stones. Dominant vegetation present is Wyoming big sagebrush (*Artemisia tridentata wyomingensis*), bluebunch wheatgrass (*Pseudoroegneria spicata*), and Thurber needlegrass (*Stipa thurberiana* Piper).

The Walti-Cleavage-Softscrabble association occurs on south, east, and west facing side slopes of mountains at elevations of 6,500 to 7,900 feet. Current uses include rangeland and wildlife habitat. The soil association is considered poor for range seeding. The parent material for the Walti soil is residuum and colluvium from a rhyolitic tuff. Depth to bedrock is 20 to 30 inches, permeability is very slow, runoff is rapid, erosion hazard by water is severe; by wind is slight. Dominant vegetation is low sagebrush (*Artemisia arbuscula*), Sanberg bluegrass (*Poa sandbergii*), Idaho fescue (*Festuca idahoensis*), and bluebunch wheatgrass.

Characteristics of Cleavage soil include occurrence on windswept crests and shoulders of mountains with depth to bedrock ranging between 14 and 20 inches. Parent rock is residuum from a volcanic rock source. Permeability is moderately slow, runoff is medium, erosion hazard by water is moderate; by wind is slight.

Softscrabble soil forms on north facing side slopes of mountains from parent material of colluvium over residuum from a volcanic source rock. Dominant vegetation is Mountain big sagebrush (*Artemisia tridentata* ssp. *vaseyana*), serviceberry (*Amelanchier* sp.), and Idaho fescue.

3.3 Air Resources

3.3.1 Climate

The climate in Crescent Valley is characterized by low precipitation, high evapotranspiration, and extreme variations in temperature. Climatological data are available from the Cortez Mine (1963–73 and 1992–96), the Pipeline Mine (1996–2002), and the U.S. Weather Bureau Stations at Beowawe (1951–80) and Eureka (1978–87), Nevada. The general wind pattern in the Project Area is westerly and northwesterly in the winter and south or southwesterly in the summer.

Over the last ten years, recorded temperatures in the southern part of Crescent Valley ranged from a low of -7.1° Fahrenheit (F) to a high of 103.7° F, with a mean temperature of 52.6° F. Recorded monthly precipitation ranged from zero to 3.76 inches, with an average annual precipitation of 6.60 inches at the Cortez Mine meteorological stations. The recent precipitation recorded at the Cortez Mine is lower than historical measurements taken at the town of Beowawe, where the average annual precipitation was 7.94 inches over the 55-year period from 1941 to 1995 (National Climatic Center 1941-1995).

3.3.2 Air Quality

The Project Area is located in Air Quality Management Area 54, the Crescent Valley air basin. The Crescent Valley is designated by the Environmental Protection Agency (EPA) as “unclassified” per National Ambient Air Quality Standards as set forth in 40 CFR81.329. An unclassified area is one for which no ambient air quality data are available and the ambient concentrations could be above or below the ambient air quality standards. Generally, the ambient air quality over much of the valley is good, due to the limited population and absence of major industrial activity. The Project Area is classified as a Class II area, pursuant to the Prevention of Significant Deterioration regulations promulgated under the Clean Air Act (CAA).

The Crescent Valley air basin is treated as an area “in attainment” with ambient air quality standards. Therefore, new sources within this basin must evaluate their impacts to air quality with respect to the ambient standards. Major sources of fugitive dust in the vicinity of the Project Area include operating mines to the south and east of the site, and vehicular traffic on unpaved roads.

3.4 Water Resources

3.4.1 Surface Water

The Crescent Valley hydrographic area is within the Great Basin section of the Basin and Range physiographic province. Physiographic features of Crescent Valley are typical of the Basin and Range province. Generally north-trending mountain ranges bound an intervening basin that is partly filled with deposits eroded from the adjacent mountain ranges. Elevations in the vicinity of the Project Area range from 9,687 feet at the summit of Mount Lewis in the northern Shoshone Range to approximately 4,700 feet amsl at Beowawe.

The Shoshone Range is a northeast-trending fault-block range, which is bounded on its northwest side by steep scarps that have been tilted to the east. As a result, the western part of Crescent Valley is

characterized by gentle slopes and large alluvial fans along the eastern flanks of the Shoshone Range. The Project Area is located within the local drainage basin of Fire Creek (Figure 2). Fire Creek is ephemeral in the Project vicinity and drains easterly toward the playa in Crescent Valley. Fire Creek does not support a fishery. A limited riparian zone occurs along the creek to the south of the Project Area along the access road to the area.

Two springs or seeps occur within the Project Area along a tributary drainage to the creek within Section 15 (Figure 3). No water quality data exist for Fire Creek.

3.4.2 Ground Water

Ground water in the Shoshone Range adjacent to Crescent Valley occurs mainly in joints and fractures within the metamorphic, volcanic, and sedimentary bedrock. Most precipitation falling on the mountains travels downslope in ephemeral streams toward the valley floor. Recharge from the runoff enters the regional ground water system as it crosses the alluvial fan deposits of the valley at the base of the mountains. Ground water moves through these deposits toward the alluvial aquifer beneath the valley floor, where large quantities of ground water are stored. The valley floor is a relatively flat area of playas, small dunes, and some terraces. Regional ground water in Crescent Valley in the Project vicinity occurs at an elevation of approximately 4,800 feet amsl on the valley margins (Bedinger, et.al 1984). The general flow direction of the regional ground water in the valley is to the northwest toward the Humboldt River (Bedinger, et. al 1984).

Site-specific ground water data for the Project Area are limited to information available from KML's 2004 drilling program. On the Project site, ground water has been encountered in exploration holes at depths ranging from 300 to 500 feet below ground surface (Personal comm. Richard Kern, May 12, 2005). The aquifer medium in the vicinity of the site is likely fractured volcanic bedrock. The faulting and fracturing of rocks throughout the area provide an excellent medium for ground water movement. Based on the Project Area's topography and geology, it may be assumed that the general flow direction of ground water beneath the site is to the east, toward Crescent Valley.

Based on the records of the NDEP, six permitted wells are located within a five mile radius of the Project Area. Ground water uses in the area include domestic, industrial, municipal, mining, and stock watering. The nearest permitted drinking water source to the Project Area is a well located in the town of Crescent Valley, approximately four miles to the southeast (Permit #25866). The well is located upgradient from the Project Area.

3.5 Vegetation

Vegetation in the Project Area, typical of the Great Basin cool desert steppe, is dominated by sagebrush with a poorly developed understory of grasses. The natural vegetation cover has been altered over much of the Project Area by previous exploration and mining activities, by livestock grazing, and apparently by a range fire. Principal shrub species identified during the site visit include big sagebrush (*Artemesia tridentata*), rabbitbrush (*Chrysothamnus* spp.), shadscale (*Atriplex confertifolia*), spiny hopsage (*Grayia spinosa*), and snakeweed (*Gutierrezia sarothrae*). Dominant grasses are squirreltail (*Sitanion hystrix*), needlegrass (*Stipa* spp.), Great Basin wildrye (*Elymus cinereus*), and cheatgrass (*Bromus tectorum*).

A limited riparian habitat is present along Fire Creek, which flows year round except in the driest years. The riparian habitat in Section 22 of T30N, R47E MDB&M averages from six to ten feet across, including the creek bed itself. Vegetation present includes several species of emergent grasses, sedges, and forbs such as watercress (*Rorippa nasturtium-aquaticum*) growing from the creek bed. Scattered willows (*Salix* spp.), wildrose (*Rosa woodsii*), and large individuals of big sagebrush are present along the creek course.

3.6 Range

The Project site is located within the Argenta Grazing Allotment, which is presently managed for approximately 17,199 animal unit months (AUMs) annually. An AUM represents the amount of forage required to support one animal for a month. The main grazing permittees in the Project vicinity are C Ranches, Chiara Ranches, Julian Tomera Ranches, Hank Filippini, Jack Broughton, and Doby George. The average acres per AUM is 6.9 acres (Personal comm. Jason Spence, Range Specialist BLM, May 11, 2005).

3.7 Invasive, Nonnative Species

An "invasive species" is defined as a species that is nonnative to the ecosystem under consideration; and whose introduction causes or is likely to cause economic or environmental harm or harm to human health (Executive Order 13112). Invasive, nonnative species are species that are highly competitive, highly aggressive, and easily spread. They include plants designated as "noxious" and animals designated as "pests" by federal or state law.

The BLM defines "noxious weed" as "a plant that interferes with management objectives for a given area of land at a given point in time" (BLM 1996). The BLM Nevada strategy for noxious weed management is to "prevent and control the spread of noxious weeds through local and regional cooperative efforts... to ensure maintenance and restoration of healthy ecosystems on BLM-managed lands. Noxious weed control would be based on... prevention, education, detection, and quick control of small infestations" (BLM 1997). The BLM's Nevada State Office maintains a "Nevada Noxious Weed List." Animal and plant species designated as "pests" are generally species that are injurious to agricultural and nursery interests or vectors of diseases, which may be transmissible and injurious to humans.

The BLM is currently developing an "Invasive Plant, Noxious Weed, and Pest Management Plan" for the Shoshone-Eureka Planning Area. There are laws, executive orders, regulations, policies, and agreements that pertain to invasive nonnative species, including the following: Executive Order 11312 (Prevention and Control of Invasive Species); Federal Noxious and Invasive Weed Laws; BLM Manuals and Partners Against Weeds Action Plan; BLM Cooperative Agreements; and Nevada Revised Statutes and Administrative Code: Chapter 555.

The Project Area has occurrences of invasive weeds, specifically halogeton (*Halogeton glomeratus*) and cheatgrass (*Bromus tectorum*) in the disturbed areas of previous open pit mining and access roads. Halogeton is listed as an invasive weed by the BLM. It occurs on valley floors, alluvial fans, foothills and uplands from 3,500 to 9,500 feet amsl or greater. It is ideally adapted to the alkaline soils and semi-arid areas of high-desert winter livestock ranges. It invades disturbed or overgrazed lands and is concentrated along roadsides and near areas where livestock congregate. Halogeton is

poisonous to sheep and cattle. Halogeton tends to be displaced by perennial species, especially if these are seeded.

Cheatgrass, or downy brome, is listed as an invasive annual grass by the BLM. It competes successfully with perennial grasses due to winter and early spring growth. Cheatgrass dominance is promoted by frequent fire events. Dry cheatgrass is an extremely flammable fine fuel that promotes rapid fire spread into shrubby fuels. Native perennial grasses may displace this species, especially under carefully managed grazing regimes. Cheatgrass is common within the Project Area.

There are no known large infestations of noxious weeds within the Project Area. Similarly, there are no invasive, nonnative animal species (pests) that are mandated for control in the Project Area. Therefore pests are not further addressed in this EA.

3.8 Wildlife

The wildlife fauna occurring within the Project Area includes a variety of rodents, rabbits, small predators, songbirds, and game species typical of the sagebrush grassland habitat in the central Great Basin. Furbearers and game species that may seasonally occur on the site include jackrabbit, bobcat, coyote, badger, mourning dove, chukar, and mule deer. The Project Area is not within an area managed for wild horses, and they are not known to occur in the vicinity.

Perennial in all but the driest years, Fire Creek provides attractive wildlife habitat. The best habitat occurs outside of the Project Area, from one to two miles upstream where seeps and springs along the creek support meadows and more extensive riparian habitat. Within the Project Area, the narrow riparian zone along the creek has been heavily impacted by livestock, providing limited wildlife habitat.

Mule deer are the most common and important big game species that occur on the Project site. The sagebrush-grassland vegetation and the narrow riparian zone along Fire Creek both contain palatable browse species. The Project Area is classified by the BLM as yearlong mule deer range, but deer probably use the area primarily in the winter and spring when they have come down from higher elevations (BLM 1990). The Project Area is within the NDOW's Management Unit 15. The NDOW does not consider the Project Area to be critical range for mule deer.

Game birds that are likely to occur within the Project Area include chukar, mourning dove, and possibly sage grouse. The entire region surrounding the Project Area is good habitat for chukars. Fire Creek provides habitat for mourning doves, which are usually attracted to water and probably nest in the willows and wild rose along the creek. No sage grouse strutting grounds have been identified in the Project Area (BLM 1990), and the lack of meadow habitat on the site precludes its use for sage grouse brood rearing. The site may be used casually by grouse throughout the year. Although Fire Creek is perennial within the Project Area, it does not support a fishery.

3.9 Threatened, Endangered, and Sensitive Species

3.9.1 Plants

There have not been any focused biological surveys conducted within the Project Area. A data search conducted by the Nevada Natural Heritage Program (NNHP) in 2005 indicated that no threatened, endangered, or BLM Sensitive plant species are known to occur in the general Project Area.

3.9.2 Animals

There have not been any focused biological surveys conducted within the Project Area. A data search conducted by the NNHP in 2005 indicated that no federally listed threatened, endangered, or candidate animal species are known to occur in the Project Area; however, there may be habitat for pygmy rabbits. The pygmy rabbit has been listed as endangered in a part of its range outside of the Great Basin. Since it is also declining in other parts of its range, the Nevada BLM State Director has directed all field offices to begin to survey for pygmy rabbits in relation to all proposed ground disturbing activities in suitable habitat.

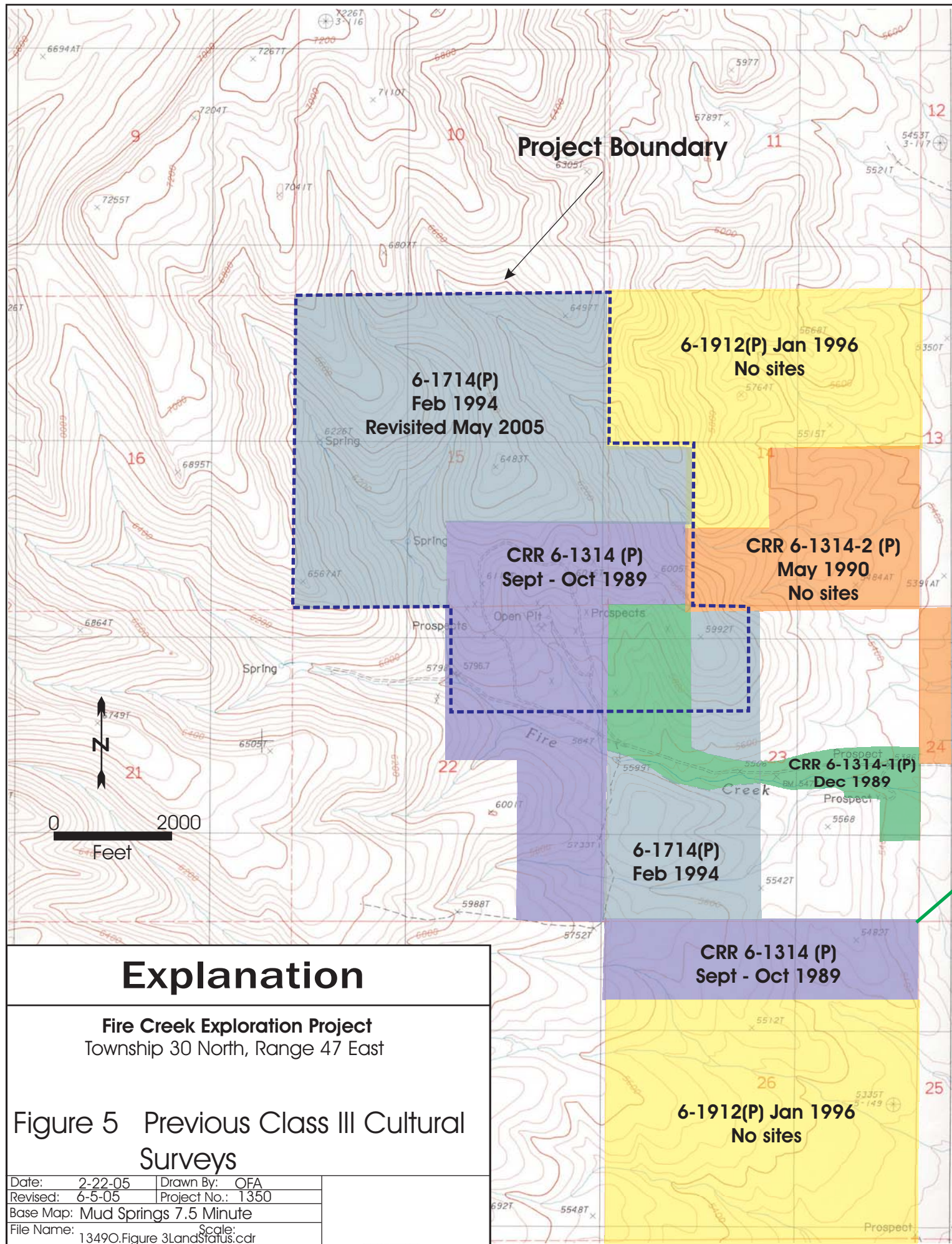
Pygmy rabbits are sagebrush obligates and require healthy, intact, native sagebrush communities for food and cover. The species is most often found within the 4,500 to 7,000 feet amsl elevation range in dense clumps of basin big sagebrush, and alternatively, stands of large individuals of Wyoming big sagebrush that are often associated with riparian areas.

3.10 Cultural Resources

A total of five Class III cultural resources surveys have been conducted on public and private lands within and surrounding the Project Area (Figure 5). A Class III survey consists of a pedestrian visual examination along parallel transects about 100 feet apart. These surveys (CRR 6-1314(P), CRR 6-1314-1(P), CRR 6-1314-2(P), CRR 6-1714(P), and CRR 6-1912(P)), were conducted by F.W. Johnson, an archaeological consultant, in September 1989, December 1989, May 1990, February 1994, and January 1996, respectively. R.K. Vierra & Associates revisited and reevaluated five sites in Section 15 that were inventoried in report 6-1714(P) in May 2005. Two of the sites were determined eligible for nomination to the National Register of Historic Places criterion "d" in that each site "has yielded or may be likely to yield information important in prehistory or history, as set forth in 36 CFR, Section 60.4"; two are not eligible; and one site composed of six flakes was not located as the area is covered with grass.

3.11 Native American Traditional Concerns

A letter describing the proposed Project was sent to the following Tribal governments: Yomba Shoshone Tribe; Battle Mountain Band, Te-Moak Tribe of Western Shoshone; Elko Band, Te-Moak Tribe of Western Shoshone; South Fork Band, Te-Moak Tribe of Western Shoshone; Wells Band, Te-Moak Tribe of Western Shoshone; Ely Shoshone Tribe; and Duckwater Shoshone Tribe. Comments concerning the Project were solicited.



Various tribes and bands of the Western Shoshone have stated that federal projects and land actions can have widespread effects to their culture and religion as they consider the landscape as sacred and as a provider. Various locations throughout the BLM Battle Mountain administrative area host certain traditional/spiritual/cultural use activities today, as in the past. Sites and resources considered sacred or detrimental to the continuation of tribal traditions include, but are not limited to: prehistoric and historic village sites, sources of water (hot and cold springs), pine nut gathering locations, sites of ceremony and prayer, archaeological sites, burial locations, "rock art" sites, medicinal/edible plant gathering locations, areas associated with creation stories, or any other tribally designated Traditional Cultural Property.

The proposed activities (mineral exploration) lie within the traditional territory of the Western Shoshone with the nearest documented Property of Cultural and Religious Importance located across the valley in the Mount Tenabo/Cortez area and well outside the proposed project boundary.

A letter notifying the Tribes of the Project was sent on March 29, 2005. A second letter was sent on June 6, 2005. In addition to sending two formal consultation initiation/invitation letters, informal communications, via phone call, also took place between BLM representatives and interested and active tribal parties. Communication and coordination efforts produced a field tour on July 6, 2005, between the BLM, Battle Mountain Band, KLM, and Enviroscientists, Inc. representatives. Detailed coordination and communication efforts are on file at the BLM.

3.12 Land Use, Recreation, and Access

The Project Area is located within the corridor of lands known as the railroad lands. This corridor consists of a checkerboard of alternating sections of public and privately owned lands. Figure 3 shows the land and mineral ownership pattern of lands within the Project Area.

The Fire Creek Project is located in Lander County in an area zoned A3. This classification is designated for agricultural use. Mineral exploration is allowed by the county without a special permit. Land use within the Project Area consists of mineral exploration and development, livestock grazing, and public recreation.

Precious metals exploration and mining is a dominant land use in the vicinity of the Project. The Project Area has been the focus of gold exploration and mining for much of this century. The Robertson Mine, Gold Acres, and South Pipeline mines are located between 10.5 and 15 miles south of the Project Area on the west side of Crescent Valley. The Cortez Mine is located about 17 miles southeast of the site on the east side of the valley. Recreational uses of the public land in the vicinity of the Project Area consist of dispersed activities such as hunting, biking, primitive camping, rock hounding, and off-road vehicle travel. The primary recreational use is hunting. Access to the Project Area is by the unimproved Fire Creek Road. No developed campgrounds are located in the vicinity of the Project. The opportunities for public recreation in the Project Area are limited by the difficulties of public access across the checkerboard of private and public lands.

3.13 Socioeconomics

The closest towns to the Project Area are Crescent Valley (six miles), Battle Mountain (45 miles), Carlin (55 miles), and Elko (75 miles). The towns have varying degrees of services that may include

post offices, gas stations, restaurants, automobile repair garages, and community services including law enforcement, fire departments, ambulances, schools, and health care. Major industries that contribute to the economic base for Lander County include government services, mining, transportation and utilities, ranching, farming, and gaming.

3.14 Visual Resources

Landscape characteristics in the vicinity of the Project Area consist of low rolling hills with sagebrush vegetation with the steeper backdrop of the Shoshone Range. The dominant feature of the landscape is the existing mining and exploration road networks and access roads within the southern end of the Project Area.

The Project Area is located within a BLM designated Class IV Visual Management Class (BLM, 1986). The BLM's visual management system rates areas on the quality of the existing visual environment, relative to its ability to accommodate manmade changes. Ratings range from Class I, the most scenic and protected, to Class IV, the least protected. Management objectives for Class IV areas allow for major modifications of the existing landscape with manmade activities allowed to dominate the landscape.

3.15 Migratory Birds

"Migratory bird" means any bird listed in 50 CFR 10.13. All native birds found commonly in the United States, with the exception of native resident game birds are protected under the Migratory Bird Treaty Act (MBTA). A variety of migratory birds use the habitat types within the Project Area for breeding and foraging. Common bird species expected to occur in the Project Area include the horned lark, sage sparrow, Brewer's sparrow, western meadowlark, sage thrasher, vesper sparrow, black-throated sparrow, gray flycatcher, rock wren, green-tailed towhee, and Brewer's blackbird (Great Basin Bird Observatory 2003).

3.16 Hazardous and Solid Waste

Hazardous and solid wastes within the Project Area consist of solid wastes, such as refuse, paper, and other inert materials, generated for Project activities. In addition, hazardous materials would be used in the Project Area that include fuels used to operate equipment associated with Project activities. Section 2.1.8 of this EA outlines the amounts and management of these wastes and hazardous materials. Travel on the public roads in the Project Area by vehicles would result in other hazardous materials and wastes being present on the Project Area during the duration of travel across the Project Area.

4 ENVIRONMENTAL CONSEQUENCES

4.1 Proposed Action

4.1.1 Geology and Minerals

The Proposed Action would not involve removal of rocks other than from drill holes and some bulk sampling from trenches. Therefore, there would be little impact to geology and minerals.

4.1.2 Soils

The construction and maintenance of access roads and drill pads would impact up to an additional 45.38 acres of soils. The potential for wind and water erosion of disturbed soils would be increased until reclamation was successfully completed. The potential impacts to soils would be reduced by measures incorporated in the Project design, including the use of waterbars and other BMPs, and the concurrent reclamation of drill pads, sumps, trenches, and drill roads no longer needed for access. Following successful reclamation, which would include regrading and revegetation of disturbed areas, soil loss due to the Proposed Action would be minimal.

4.1.3 Air Resources

Travel on dirt roads, drilling, and excavation activities within the area of the Proposed Action would create fugitive dust, causing a minor impact to air resources. As described in the Proposed Action, fugitive dust would be controlled by minimizing surface disturbance. Speed limits on access roads would be observed, and travel on roads within the Project Area would be conducted at prudent speeds. Impacts would be controlled by using water trucks for dust suppression, if required. Reclamation of proposed surface disturbance would gradually eliminate long-term impacts to air resources.

4.1.4 Water Resources

Ephemeral and perennial drainages within the Project Area could be impacted by development of exploration drill roads. Potential erosion from roads, drill pads, and sumps could impact surface water resources only when there are surface flows. By implementing BMPs for road construction and drill pad siting, impacts to surface water resources would be minimized. Any residual impacts would only be temporary, lasting until exploration roads, drill pads, and trenches are successfully reclaimed and revegetated.

4.1.5 Vegetation

The Proposed Action would result in additional surface disturbance of approximately 45.38 acres of vegetation. Reclamation would begin upon completion of exploration activities using the BLM recommended seed mix (Table 2). The disturbance would be mostly linear (roads) or patchy (drill pads) in form, and therefore highly likely to be recolonized by surrounding vegetation. Road development and drilling activity would take place predominantly within the salt desert shrub community, which is the abundant vegetation type within the Project Area and in the vicinity. No

native plant communities would be eliminated from the Project Area as a result of the Proposed Action.

Vegetation removal or crushing and subsequent reclamation efforts would result in the conversion from a desert shrub-dominated community to a grass/forb-dominated community in the short term. Once established, shrub species may become dominant within three to five years. However, 15 to 20 years may be required to establish mature shrubs. Although the structure of the vegetation would be modified, the reclaimed plant community is expected to produce adequate cover to stabilize the site and provide forage for use by livestock and wildlife in the short term, thereby meeting the reclamation goals. Impacts to vegetation would be minimized through the implementation of BMPs (e.g. silt fences and straw bales) and the Environmental Protection Measures discussed in Section 2.1.10, and by limiting construction on slopes. In addition, the riparian vegetation along Fire Creek would be avoided. Therefore, the impacts of the Proposed Action on vegetation would be minimal.

4.1.6 Range

The Argenta allotment consists of 122,370 acres of public lands (BLM 1983). The average stocking rate for the allotments is approximately 6.9 acres per AUM. The potential temporary loss of up to seven AUMs would result from the Proposed Action. This is less than one percent of the initial stocking level for the allotment. The impact of the Proposed Action on range resources would be minimal.

4.1.7 Invasive, Nonnative Species

Weed species rapidly invade disturbed areas and initially hinder the establishment of more desirable perennial grasses and forbs by outcompeting them for moisture during the initial years following disturbance or seeding. Noxious weeds are typically very aggressive and have the ability to dominate sites with dramatic impacts to native plant communities, as well as decreasing the available amount of forage for livestock and wildlife.

Noxious weeds may be introduced to or spread within the Project Area as an indirect result of exploration activities. Common methods of introduction and spread include the movement of contaminated equipment across uncontaminated lands, and/or spreading gravel, roadfill, and topsoil contaminated with noxious weed seed in areas that were previously weed free (BLM 1996). Moisture available from watering roads and other traffic areas for dust suppression during construction and exploration activities could result in a temporary increase in some opportunistic plant species immediately adjacent to active roadways or other watered surface areas. Similarly, areas conducive to supporting noxious weeds may be created in other moist areas such as new low spots or drainage areas where water could pond within the drill pads. Surface disturbance creates an environment conducive to supporting noxious weed species. The Proposed Action would result in approximately 45.38 additional acres of surface disturbance that would be susceptible to noxious weed infestation.

Through implementation of BMPs and control measures for noxious weed management discussed in Sections 2.1.9 and 2.1.10, the potential to introduce to or spread noxious weeds within the Project Area as a result of the Proposed Action would be minimized. Infestations, were they to occur, would be treated. Therefore, the impact of the Proposed Action on the spread of noxious weeds is expected to be minimal.

4.1.8 Wildlife

Impacts to wildlife would consist of temporary habitat loss, displacement as the result of removal of vegetative cover, and disturbance from human activity and noise. Up to 45.38 acres of existing wildlife habitat would be temporarily impacted by exploration activities over a two- to three-year period, with the actual length of time based on exploration results. The majority of the disturbance would occur within the salt desert shrub community, resulting in short-term loss of forage for antelope, and nesting habitat for shrub and ground nesting birds. Large acreages of habitat similar to that which would be disturbed are available in the area surrounding the Project. The riparian habitat along Fire Creek would be avoided due to its high value as wildlife habitat.

Wildlife sensitive to human activity and noise may be temporarily displaced as a result of the Proposed Action. Construction of roads and drill pads and the operation of drilling equipment may disturb wildlife due to the presence of humans and by creating noise and dust. However, many animals could be expected to become habituated to the regular noise and resume their use of otherwise unaffected habitat. Wildlife foraging activities within the Project and staging areas could continue to be dispersed since a maximum of two drill rigs would be operating at one time, allowing wildlife to move around and between Project activities. Impacts to wildlife would be lessened by reclaiming access and drill roads as quickly as possible. No long-term impacts to wildlife habitat are likely to occur since reclamation and reestablishment of shrub species would likely take place within several years of Project completion. Therefore, the Proposed Action would have minimal impacts on wildlife species.

4.1.9 Threatened, Endangered, and Sensitive Species

There have not been any focused biological surveys conducted within the Project Area. A data search conducted by the NNHP in 2005 indicated that no threatened, endangered, or BLM Sensitive plant or animal species are known to occur in the general Project Area. The Project Area may provide habitat for sage grouse and pygmy rabbit. KML has committed to seasonal restrictions on disturbance near sage grouse leks, nesting, and brood rearing areas. These seasonal restrictions, along with avoidance of riparian habitats, would also afford protection to the pygmy rabbit.

4.1.10 Cultural

KML has committed to the following environmental protection measure related to cultural resources within the Project Area:

- KML shall avoid all eligible or unevaluated cultural sites that have been located through Class III cultural surveys.
- Pursuant to 43 CFR 10.4(g), KML shall notify the BLM authorized officer by telephone and with written confirmation immediately upon the discovery of human remains, funerary objects, sacred objects, or objects of cultural patrimony (as defined in 43 CFR 10.2). Further pursuant to 43 CFR 10.4 (c) and (d), the operator shall immediately stop all activities in the vicinity of the discovery and not commence again for 30 days or until notified to proceed by the BLM authorized officer.

Based on these committed practices, the Proposed Action would not directly impact any eligible or unevaluated sites.

4.1.11 Native American Traditional Concerns

Communication and coordination efforts, including formal consultation initiation/invitation letters, phone contacts, and a field tour yielded concerns regarding the possible drying up of springs and cultural site disturbance. All water for drilling is obtained from the Town of Crescent Valley. All drill holes will be plugged to prevent changes in ground water flow patterns; therefore, there will be no impact to the springs. KLM has committed to avoiding cultural sites located within the Project boundary.

4.1.12 Land Use, Recreation, and Access

Land uses within and around the Project Area primarily consist of mineral exploration and mining. The Proposed Action would result in minor temporary changes to land use in the Project Area with regard to recreation and grazing. The impacts on land use would be minimal.

4.1.13 Socioeconomics

The presence of an average of up to 12 individuals and contract workers associated with the Project may cause temporary minor impacts to the communities of Crescent Valley, Battle Mountain, Carlin, or Elko. These impacts could include increased traffic and increased business patronage for motels, restaurants, gas stations and grocery stores. The impacts of the Proposed Action on socioeconomics would be minimal.

4.1.14 Visual Resources

The Proposed Action would result in short-term visual impacts principally affecting the visual elements of line and color. Horizontal and shallow diagonal lines from drill roads would cause moderate, temporary line contrasts with the natural landscape. Disturbance of vegetation would cause moderate, temporary color contrasts. With successful reclamation of exploration roads and revegetation, long-term visual impacts would be minimized. The effects of the Proposed Action on visual resources would be consistent with BLM prescribed Class IV VRM objectives.

4.1.15 Migratory Birds

The Proposed Action would result in up to 45.38 acres of additional surface disturbance, which may result in the destruction of active nests or disturb the breeding behavior of migratory bird species. These localized effects are not expected to adversely affect populations of common migratory bird species. However, disruption of the active nests of any migratory bird species would constitute a violation of the MBTA.

Potential impacts would be reduced based on the environmental protection measures outlined in Section 2.1.10. Specifically, restrictions on surface disturbance within the nesting season, requirements for nesting surveys prior to disturbance, and restrictions on disturbance within a 0.5 mile radius of any active raptor nests.

4.1.16 Hazardous and Solid Waste

The generation of wastes and the use of hazardous materials as a result of the Proposed Action may result in the release of these wastes or materials. Section 2.1.8 of this EA outlines how these wastes and materials would be managed and how a spill would be addressed. Therefore, the Proposed Action would have a minimal impact from hazardous and solid waste.

4.2 No Action Alternative

Under the No Action Alternative, none of the impacts associated with the Proposed Action would occur. However, ongoing mineral exploration activities currently permitted in the Project Area, which are similar to those described for the Proposed Action, would result in impacts similar to but proportionally less than those associated with the Proposed Action.

4.3 Cumulative Impacts

As defined in 40 CFR 1508.7 (regulations for implementing NEPA) a cumulative impact is an impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions (RFFAs), regardless of what agency (federal or nonfederal) or person undertakes such other actions. Cumulative impacts can result from individually minor, but collectively significant actions taking place over a period of time. Cumulative impacts have been evaluated in the 1990 Black Beauty Gold, Inc.'s Fire Creek Mine and Heap Leach Project EA (1990) and more recently in the Pipeline/South Pipeline Pit Expansion Project Environmental Impact Statement (EIS) (BLM 2004) and the Horse Canyon/Cortez Unified Exploration Project EA (BLM 2004). This cumulative analysis utilizes the information presented in these previous documents.

Different cumulative effects study areas (CESAs) have been developed for each of the resources that would be impacted by the Proposed Action and thus could be impacted cumulatively. Potential impacts to resources, which are short term, minor, and *de minimis* have been evaluated in the previous section and are not included in this cumulative impacts assessment. Figure 6 presents the CESA boundary for range resources, which is the Argenta Allotment. The CESA for air and water resources is the Crescent Valley Hydrographic Basin as shown on Figure 7. The CESA for soils, visual, vegetation, wildlife, and invasive, nonnative species is the northern portion of the Shoshone Range as shown on Figure 8. The CESA for socioeconomics would be the communities of Crescent Valley, Battle Mountain, Carlin, and Elko. These CESAs include both BLM administered public lands and private lands.

4.3.1 Past Actions

The past actions have been associated primarily with livestock grazing, agricultural development, and mining. All portions of the CESAs have been utilized for livestock grazing. Agricultural development has altered the soils and vegetation. Native plant communities have been altered by grazing, rangeland fires, and the introduction of nonnative plants. In addition, small areas have been disturbed to accommodate water storage facilities and fencing.

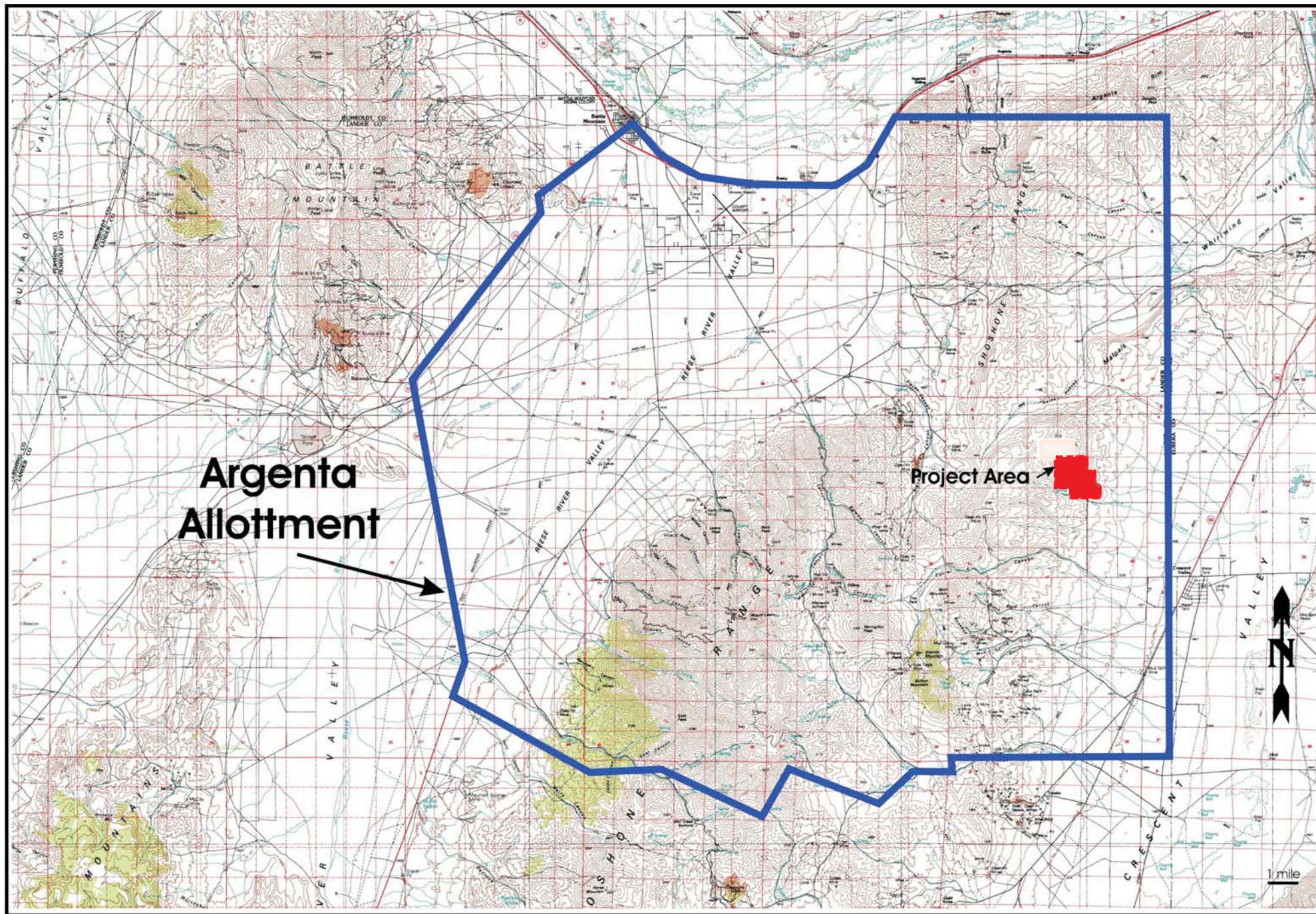


Figure 6 CESA for Range Resources

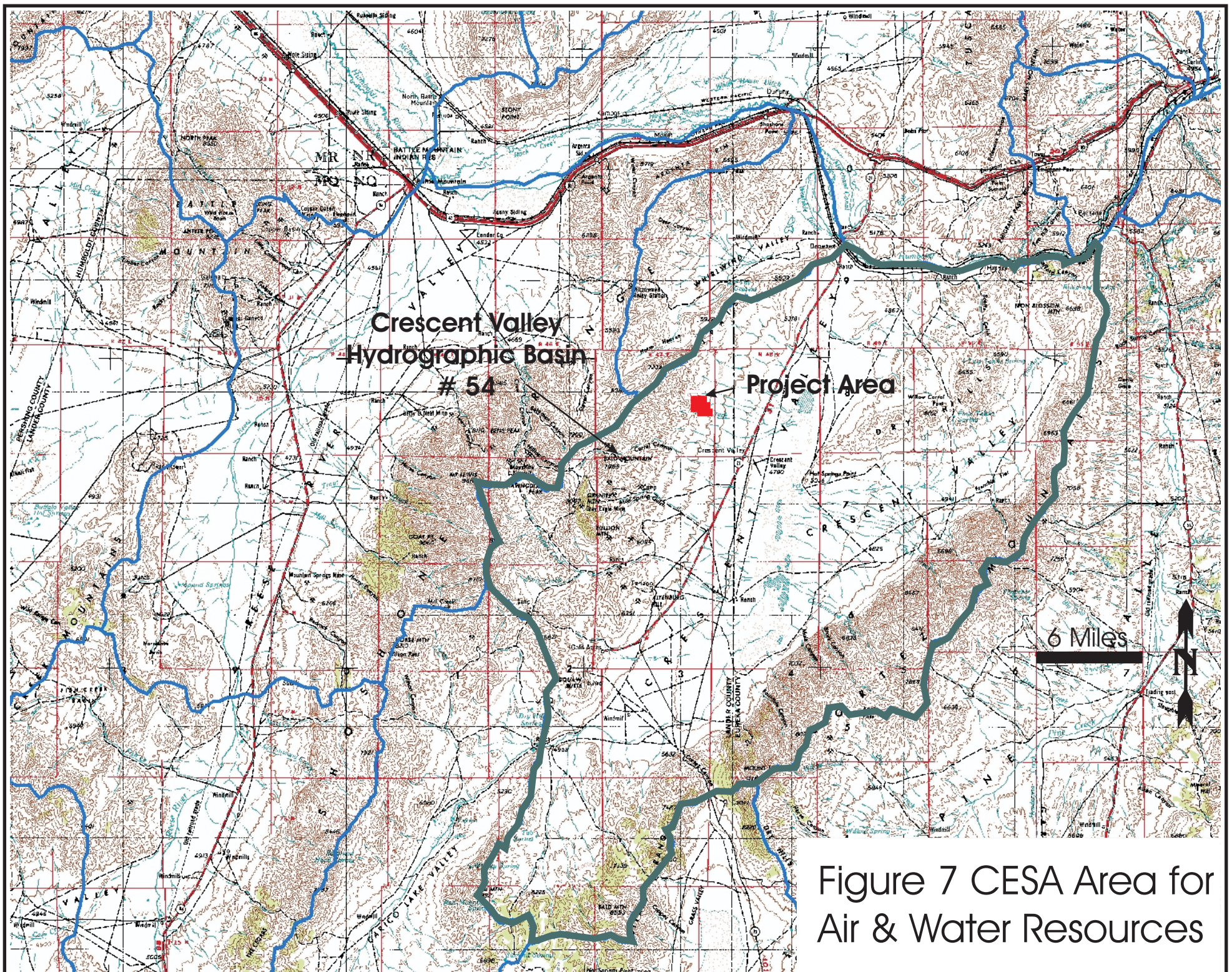


Figure 7 CESA Area for Air & Water Resources

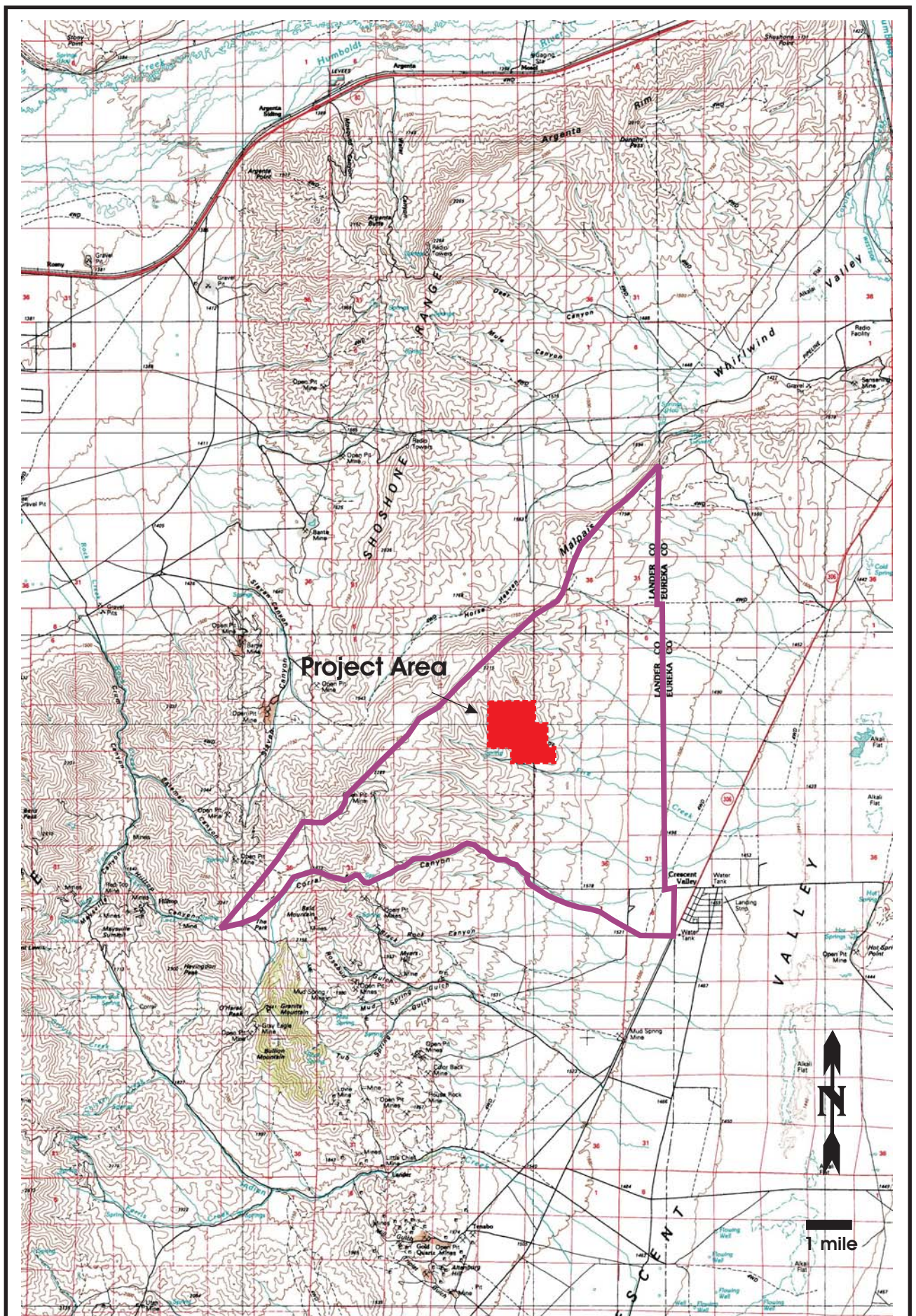


Figure 8 CESA for Vegetation, Wildlife, Invasive and Nonnative Resources and Socioeconomics

Pre-1950 mining actions were generally small operations associated with the mining of vein-type deposits. The exception is Gold Acres, which was one of the first large-scale gold mining operations that used leaching to retrieve gold from low-grade ore. In the 1970s, Klondex Gold and Silver Mining Company conducted small scale mining activities and a test scale heap leach operation. In the 1990s, Black Beauty Gold constructed and operated a small open pit mine and heap leach operation. The majority of mining activities since the 1980s have been larger scale gold and silver mining operations.

4.3.2 Present Actions

Present mining related actions include the Proposed Action, the Pipeline/South Pipeline Pit Expansion, the proposed Pediment Project, the Cortez Mine, the Gold Acres Mine, the Cortez Underground Exploration Project, and various other existing and proposed exploration projects. All present mining and exploration related actions are described either in the South Pipeline Final EIS (BLM 2000) or the Pipeline/South Pipeline Pit Expansion EIS (BLM 2004).

4.3.3 Reasonably Foreseeable Future Actions

RFFAs in this EA include potential additional KML exploration activities; expansion of the Pipeline/South Pipeline mines, development of the Pediment and Cortez Hills projects, the Cortez Underground Exploration project and discovery of additional adjacent mineralization, future dewatering operations, and refractory ore processing. In addition, there are numerous exploration projects within the hydrographic basin that could potentially turn into mines. Other exploration projects would be expected that would not turn into mines.

Other RFFAs would include future public land sales, improvements in the condition of grazing allotments, and installation of livestock and wildlife watering facilities. Wildlife management objectives for the Argenta Allotment are specifically defined in the Shoshone-Eureka RMPs. Additional agricultural development is reasonably expected to occur in the form of additional pivot irrigation.

4.3.4 Impact Analysis

For the purpose of cumulative assessments in this EA, high impacts would be those impacts that were significant; medium impacts would be those that are discernable to moderate and would occur over an extended timeframe; and low impacts would be short term in length and *de minimus* to minor. None of the impacts were high.

4.3.4.1 Soils

Past and Present Actions – Prior to the initiation of the current reclamation standards, no or limited measures were implemented to conserve soil resources. Most mining operations were of smaller scale and consisted of underground operations with small disturbance footprints. Most soil resource impacts consisted of the disturbance or burial of soils during exploration road building, trenching, and mining. Present impacts to soils would be the mixing and short-term loss of productivity while the soils are stockpiled prior to use in reclamation. These impacts would be localized and minimized

due to implementation of environmental protection measures, and the implementation of revegetation on the soils when used in reclamation.

Cumulative impacts to soils have also occurred and continue to occur as a result of road construction, recreation, and agricultural activities including livestock grazing. Impacts from recreation would be considered low because of its dispersed nature and the small amount of surface area traveled in the CESA (Figure 8). Impacts from grazing would be considered low because of the ratio of the CESA in relation to the larger size of the grazing allotment. Overall, cumulative impacts to soils from past and present actions in the CESA would be considered to be low to moderate, based on the use of improved methods of soil handling, and short and long-term erosion prevention techniques including BMPs implemented during surface disturbing activities.

RFFAs – Impacts to soils could occur in the CESA due to RFFAs. Impacts could occur from continued road construction, residential development and mineral exploration and mining. However, the cumulative impacts on soils in the CESA due to RFFAs would be considered to be low to moderate based on the use of improved methods of soil handling, and short and long-term erosion prevention techniques including BMPs employed during construction activities and revegetation of disturbed soils associated with mining exploration and development.

4.3.4.2 Water Resources

Surface Water Resources

Past and Present Actions – Prior to the initiation of the Clean Water Act, few if any measures to control or minimize impacts to surface water resources were required. Most mining operations were of smaller scale and consisted of underground operations with small disturbance footprints. Most surface water quality impacts consisted of generating sediment during exploration road building, trenching, and mining. Other cumulative impacts to surface water resources resulting from past actions in the CESA (Figure 7) are primarily related to the presence of large gold mining operations. Other activities, including construction and maintenance on SR306 and paved secondary roads; construction of utility facilities such as electric transmission lines and pipelines; dispersed recreation activities; and agriculture and livestock grazing could also have contributed to surface water resource impacts. Past impacts from these actions would be considered low to moderate.

The Project operations are situated in one Hydrographic Basin (Basin 54) (Figure 7). Impacts to surface water quality include sedimentation from mining related activities and road construction. Present actions that could impact surface water resources in the CESA include improvement and maintenance to SR306; improvements and maintenance to paved and dirt secondary roads; expansion of utility facilities such as electric transmission lines and pipelines; and exploration and mining operations. Dispersed recreation activities, agriculture and livestock grazing activities, and widespread mineral exploration could also contribute to surface water resource impacts within the CESA (Figure 7). These impacts would be localized and minimized due to implementation of environmental protection measures, which include sediment control measures, and reclamation. These impacts would be considered low as the major infrastructure facilities are already in place.

RFFAs – Surface water quality impacts from RFFAs could include sedimentation from mineral exploration and further mineral development. It is anticipated that these impacts would be short term

and localized. These mine related impacts would be subject to the BMRR water quality permits and compliance, development of mitigation measures, and implementation of environmental protection measures. It is expected that cumulative impacts from RFFAs would be localized and would be low, pending implementation of permit requirements and ultimate effective closure of current mining operations.

Ground Water Resources

Past and Present Actions – Prior to the promulgation of the modern regulations few if any measures to control or minimize impacts to ground water quality were required. Most mining operations were of smaller scale and consisted of underground operations with small disturbance footprints. Most ground water quality impacts consisted of the consumption of ground water for the underground mines and contamination from process discharges and spills.

The permitted Project operations are situated in Hydrographic Basin 54 (Figure 7). Impacts to ground water include the consumption of water for exploration activities and nearby mining operations. These impacts would be localized and minimized due to implementation of environmental protection measures.

RFFAs – Impacts to water resources that could result from RFFAs would be similar to those described in the Present Action. Ground water impacts from mining RFFAs could include the consumption of water for activities and impacts from leakages, discharges or spills during exploration drilling and mining operations. However, any leakage, discharge, or spills would be controlled and remediated in accordance with current regulations. It is expected that cumulative impacts from RFFAs would be localized and would be low with implementation of permit requirements.

4.3.4.3 Vegetation

Past and Present Actions – Cumulative impacts to the native vegetation occurred as a result of past livestock grazing, agricultural activities, highway construction, and utility corridors. These impacts are considered low. Most mining operations were of smaller scale and consisted of underground operations with small disturbance footprints. Most vegetation impacts consisted of the removal of vegetation during exploration road building, trenching, and mining.

Impacts to vegetation from mining would be limited to the removal of vegetation associated with exploration and mining facility development. These impacts would be localized and minimized due to implementation of environmental protection measures, which would include the implementation of revegetation on the Project facilities as soon as operations would be completed. Impacts to vegetation from other activities are considered to be the same as past actions. These impacts, if they continue at the same rate, would be considered low to moderate.

RFFAs – Cumulative impacts to vegetation within the CESA (Figure 8) would be moderate and dependent on the degree of surface disturbance. Development of the RFFAs within the CESA would result in long-term cumulative impacts to vegetation. Reclamation following the completion of exploration, mining and processing activities would mitigate impacts to BLM administered public lands. It is expected that cumulative impacts from RFFAs would be localized and would be low pending implementation of permit requirements and ultimate closure of current mining operations.

4.3.4.4 Range

Past and Present Actions – Cumulative impacts to range resources occurred as a result of past livestock grazing, agricultural activities, highway construction, and utility corridors. These impacts are considered low. Most mining operations were of smaller scale and consisted of underground operations with small disturbance footprints. Most vegetation impacts consisted of the removal of vegetation during exploration road building, trenching, and mining.

Impacts to range from mining would be limited to the removal AUMs associated with exploration and mining facility development. These impacts would be localized and minimized due to implementation of environmental protection measures, which would include the implementation of revegetation on the Project facilities as soon as operations would be completed. Impacts to range resources from other activities are considered to be the same as past actions. These impacts, if they continue at the same rate, would be considered low.

RFFAs – Cumulative impacts to range resources within the CESA (Figure 6) would be moderate and dependent on the degree of surface disturbance. Development of the RFFAs within the CESA would result in long-term cumulative impacts to range resources. Reclamation following the completion of exploration, mining and processing activities would mitigate impacts to BLM administered public lands. It is expected that cumulative impacts from RFFAs would be localized and would be low pending implementation of permit requirements and ultimate closure of current mining operations.

4.3.4.5 Invasive, Nonnative Species

Past and Present Actions – Past actions have resulted in the introduction of nonnative, invasive species to the vegetation matrix in the CESA (Figure 8). These actions probably allowed for introduction of noxious weeds. However, no noxious weed surveys have been completed to confirm this.

Most mining operations were of smaller scale and consisted of underground operations with small disturbance footprints. Most invasive, nonnative species and noxious weeds impacts consisted of the removal of vegetation during wildland fires, road building, trenching, and mining, which provides opportunities for invasive, nonnative species and noxious weeds to propagate. There was little concern for limiting the spread of noxious weeds.

Cumulative impacts from invasive, nonnative species from present and mining related actions in the CESA are expected to be moderate. Continued development in the CESA contributes to the potential for nonnative, invasive species to become established. Weed control programs and practices are utilized to minimize establishment and spread of these species. If noxious weeds become established, a noxious weed control program would be implemented specific to the weed species found. Control measures would comply with federal and state regulations.

Impacts to invasive, nonnative species and noxious weeds from KML's operations would be limited to the removal of vegetation associated with exploration, which provides opportunities for invasive, nonnative species and noxious weeds to propagate. These impacts would be localized and minimized due to implementation of environmental protection measures, which would include the implementation of revegetation on the Project facilities as soon as operations would be completed.

RFFAs – Invasive, nonnative species, and noxious weeds impacts from RFFAs would include the development of the mineral resources within the CESA associated with the expansion of the KML's operations. It is expected that cumulative impacts from this RFFA would be localized and would be low, pending implementation of permit requirements and ultimate closure of current operations. Overall, invasive/noxious weed impacts would be dependent on the amount and degree of surface disturbance from all RFFAs. Impacts could be moderate, however, mitigation measures would be considered to control weeds during the quarry plant permitting process and with the implementation of environmental protection measures described in Section 2.1.10, impacts from the establishment and spread of noxious weeds would be low.

4.3.4.6 Wildlife (Including Migratory Birds)

Past and Present Actions – Potential cumulative impacts to wildlife and migratory birds occurred as a result of impacts to their habitat from past livestock grazing, agricultural activities, highway construction, utility corridors, and historical mining development. These impacts are considered low. Most mining operations were of smaller scale and consisted of underground operations with small disturbance footprints. Most impacts to wildlife occurred as a result of the removal of vegetation, or destruction of habitat, and disturbance from noise during exploration road building, trenching, and mining.

Impacts to wildlife from mining would be limited to the removal of vegetation, or destruction of habitat, and disturbance from noise associated with exploration and mining facility development. These impacts would be localized and minimized due to implementation of environmental protection measures, which would include the implementation of revegetation on the Project facilities as soon as operations would be completed. Impacts to wildlife from other activities are considered to be the same as past actions. These impacts, if they continue at the same rate, would be considered low to moderate.

RFFAs – Cumulative impacts to wildlife within the CESA (Figure 8) would be moderate and dependent on the degree of surface disturbance. Development of the RFFAs within the CESA would result in long-term cumulative impacts to wildlife. Reclamation following the completion of mining and processing activities would mitigate impacts to BLM administered public lands. It is expected that cumulative impacts from RFFAs would be localized and may be moderate pending implementation of permit requirements, adherence to the Migratory Bird Treaty Act, and ultimate closure of current mining operations.

4.3.4.7 Threatened, Endangered, and Sensitive Species

Past and Present Actions - There would be no cumulative adverse impacts to any listed threatened or endangered species as none of these species are known to reside within the CESA (Figure 8). Cumulative impacts to BLM Sensitive Species, (i.e. pygmy rabbit and sage grouse) could occur. Due to the overall small scale and phased nature of the Proposed Action, additional impacts resulting from the action, if they occurred, would be considered low.

RFFAs - Special status species have specific habitat requirements. For example, habitat for the bat species includes caves, crevices, and steep rocky outcrops. It is unlikely that these specific habitats would be affected from RFFAs within the CESA. Impacts to sage grouse from RFFAs would be low

based on implementation of mitigation measures and conservation management plans for this species. Any potential impacts to special status species would be low. There would be no cumulative adverse impacts to any listed threatened or endangered species as none of these species are known to utilize habitat within the CESA.

4.3.4.8 Cultural Resources

Past and Present Actions - Prior to the passage of the National Historic Preservation Act of 1966, the National Environmental Policy Act of 1969, the Federal Land Policy & Management Act of 1976, and the Archeological Resource Protection Act of 1979, few if any measures to control or minimize impacts to cultural resources were required. Impacts to cultural resources may have occurred due to mining and other development activities. Other impacts occurred due to unauthorized collection and excavation. Overall impacts to cultural resources within the CESA were low to moderate.

Implementation of cultural resource laws has averted most impacts to cultural resources on public land from development activities. Some impacts have continued to occur due to unauthorized collection and excavation. Increased recreation use and development may increase the potential for collection of artifacts. As stated in Section 4.1.10, activities associated with the Proposed Action would not have impacts on cultural resources. Therefore, the Proposed Action would not affect cumulative impacts to cultural resources.

RFFAs - Cumulative impacts to cultural resources due to RFFAs in the CESA are expected to be low. Impacts due to unauthorized collection and excavation may continue.

4.3.4.9 Socioeconomics

Past and Present Actions - Moderate cumulative impacts to socioeconomics due to past actions within the CESA have occurred. The CESA provides living accommodations and all services that are required for workers in the numerous large mines in the area. Past highway construction, residential development, agricultural, and mining activities have been a strong and positive impact to socioeconomics in the past.

Ongoing mineral exploration (including the Proposed Action) and mining operations have a low cumulative impact on socioeconomics. Additional impacts resulting from ranching activities; maintenance and construction of electric transmission lines, and/or utility corridors; and dispersed recreation would cause low but positive impacts.

RFFAs - Positive impacts to socioeconomics would occur from the additional employment opportunities future exploration would provide. Cumulative impacts to socioeconomics are anticipated from RFFAs continued livestock grazing, improvements to both the highway, and expansion and/or development of new utility corridors. Most of these impacts would be positive and considered moderate.

4.4 Mitigation Measures

4.4.1 Invasive, Nonnative Species

Environmental protection measures included in the Project design shall be implemented to minimize the potential to introduce into, or spread weeds within, the Project Area. These measures include the use of BMPs and eradication techniques.

4.4.2 Migratory Birds and Sensitive Species

Any land clearing or other surface disturbance associated with the Proposed Action within the Project Area shall be conducted outside of the avian breeding season (roughly March through June) whenever feasible to avoid potential destruction of active bird nests or young of birds that breed in the area. When surface disturbance is created during the avian breeding season, a qualified biologist shall survey the area prior to land clearing. If active nests were located, or if other evidence of nesting (i.e., mated pairs, territorial defense, carrying nesting material, transporting food) were observed, a protective buffer (the size depending on the habitat requirements of the species) shall be delineated and the entire area avoided to prevent destruction or disturbance to nests until they are no longer active. The start and end dates of the seasonal restriction shall be based on site-specific information such as elevation and winter weather patterns, which would affect breeding chronology.

In addition to the seasonal restrictions on disturbance, areas of proposed disturbance will be surveyed for BLM Sensitive species prior to disturbance. Populations of BLM Sensitive Species and occupied habitat will avoided to the extent possible.

5 CONSULTATION AND COORDINATION

This EA was prepared at the direction of the BLM, Battle Mountain Field Office, Battle Mountain, Nevada, by Enviroscientists, Inc., under a contract with KML. The following is a list of individuals responsible for preparation of the EA.

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5.2 Agencies Contacted

State Agencies

Nevada Department of Conservation and Natural Resources
Nevada Division of Wildlife
Nevada Natural Heritage Program

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